

Socio-Economic Impact of Biogas Plant in Rural Nepal
(A Case Study of Phidim VDC of Panchthar District)

A Thesis

**Submitted in Partial Fulfillment of the Requirements
for the Award of the Degree of Master of Arts in
Rural Development**

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LETTER OF RECOMMENDATION

This is to certify that this thesis entitled "**Socio-Economic Impact of Biogas Plant in Rural Nepal : A Case Study of Phidim VDC of Panchthar District**". It has been prepared by **Mr. Dipendra Timsina** under my supervision as a partial fulfillment of the requirement for the degree of Master of Arts in Rural Development.

To the best of my knowledge the study is original and carries useful information in the field of study of Phidim VDC. I recommend it for evaluation to the Thesis committee.

.....

Tulsi Sharan Sigdel

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APPROVAL LETTER

We certify that this thesis entitled "**Socio-Economic Impact of Biogas Plant in Rural Nepal : A Case Study of Phidim VDC of Panchthar District**" Submitted by **Mr. Dipendra Timsina** to the Central Department of Rural Development, Faculty of Humanities and Social Sciences, Tribhuvan University, in partial fulfillment of the requirements for the Degree of MASTER OF ARTS in Rural Development has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the said degree.

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Abstract

Energy is a basic necessary for survival which helps in the economic development and living standard of a country. In Nepal, majority of the people still depends on the traditional sources of energy i.e. firewood, which has manifold disadvantages regarding Environmental, Health and Sanitation but the new alternative energy, biogas which replace the traditional sources of energy, has many positive aspects. It is environment friendly and easy to use. Since Nepal is an agricultural country, most of the people rear cattle. Cattle dung is the basic raw materials for biogas. Nepal has a great potentiality of biogas.

This study was carried out with the objective of : To find out the Socio-Economic Impact of Biogas. The data is collected through the questionnaire, interview, FGD and observation. The purposive sampling of 32 HHs was done to gather the necessary information required. From the research it is known that the dominant position is of Bramahans followed by other castes. The main occupations of the local people are agriculture 46.88 and services 25 percent in Nepal. More than 65 percent people in sampled households are literate. On an average, the each plant owners has 4 heads of livestock. The most popular biogas plant of the study area is 6m³. the main reasons behind the installation of biogas plant are easy and smokeless cooking, get rid from firewood collation and time saving.

On an average, time saving after installation is 120 minutes per day from firewood collection, cooking activities and washing utensils. Saving of time which is spent collecting firewood and its reduction of consumption is equal to Rs. 400 per months. Most of the people use Bio-slurry in their farms in composted form. According to them, the use of slurry has increased the production especially Maze, Paddy and vegetables. The use of chemical fertilizer has been reduced which has helped in saving money.

In the present world, there is shortage of petroleum fuels on the one had and the other the price for such fuels is getting very high. Developing country like Nepal, who doesn't have its own petroleum products, cannot have such fuels. So, alternative energy for such fuels can be biogas in Nepal because it is an agricultural country and thus, the potentiality is very high. Besides that biogas is environmental friendly so it can directly help CDM programme. And from carbon trading Nepal also can get a high amount of money.

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ABBREVIATION

ADB	=	Asian Development
ADB/N	=	Agriculture Development Bank of Nepal
AEPC	=	Alternative Energy Promotion Centre
ARI	=	Acute Respiratory Inflection Acute
BSP	=	Biogas Support Programme
BSP/N	=	Biogas Sector Partnership Nepal
C.Ft.	=	Cubic Fit
CBS	=	Central Bureau of Statistics
CDCF	=	Community Development Carbon Found
CDM	=	Clean Development Mechanism
CEDCON	=	Central Department of Economics
CER	=	Certified Emission Reduction
CH ₄	=	Methane
Cm/m ³	=	Cubic meter
CMS	=	Consolidated Management Services Nepal
CO ₂	=	Carbon Dioxide
DDC	=	District Development Committee
ERPA	=	Emission Reduction Purchase Agreement
etc.	=	Excetra
FCN	=	Fuel Corporation of Nepal
FM	=	Frequency Modulation
FY	=	Fiscal Year
FYM	=	Farm Yard Manure
G-c	=	Gram Carbon
GDP	=	Gross Domestic Product

GGC	= Gobar Gas Tatha Agricultural Equipment Development Company
GHGs	= Green House Gas/es
GoN	= Government of Nepal
HHs	= Households
HMG/N	= His Ministry Government of Nepal
HRs	= Hours
ICS	= Improved Cook Stoves
INGOs	= International Non Government Organization
Kgs	= Kilograms
KVIC	= Khadi and Village Industries Commission
Kwh/m ³	= Kilowatt per meter cube
LPDs	= Low Penetration Districts
LPG	= Liquefied Petroleum Gas
M.A.	= Master's of Arts
MJ	= Mega Jules
MoF/GoN	= Ministry of Finance/Government of Nepal
MoFASC	= Ministry of Forest and Soil Conservation
NAST	= Nepal Academic for Science and Technology
No	= Number
NBPG	= Nepal Biogas Promotion Group
NGOs	= Non Government Organizations
NPC	= National Planning Commission
NPK	= Nitrogen-Phosphorus-Potassium
NRs	= Nepalese Rupees
RETs	= Renewable Energy Technology
S.L.C.	= School Living Certificate

SFDP	=	Small Farmer Development Programme
SNV	=	Netherlands Development Organization
Sq.km/Km ²	=	Square Kilometer
T.U.	=	Tribhuvan University
T.V.	=	Television
UMN	=	United Mission to Nepal
UN	=	United Nations
UNDP	=	United Nations Development Programme
UNHCR	=	United Nations High Commissioner for Refugees
UNICEF	=	United Nations International Children's Education Found
US\$	=	United State Dollar
USAID	=	United Sates Agency for International Development
VDC	=	Village Development Committee
WECS	=	Water Energy Commission Secretariat